N. A. C. A. BULLETIN

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IN THREE SECTIONS

Section I

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Office Management and Efficiency Standards for Clerical Help

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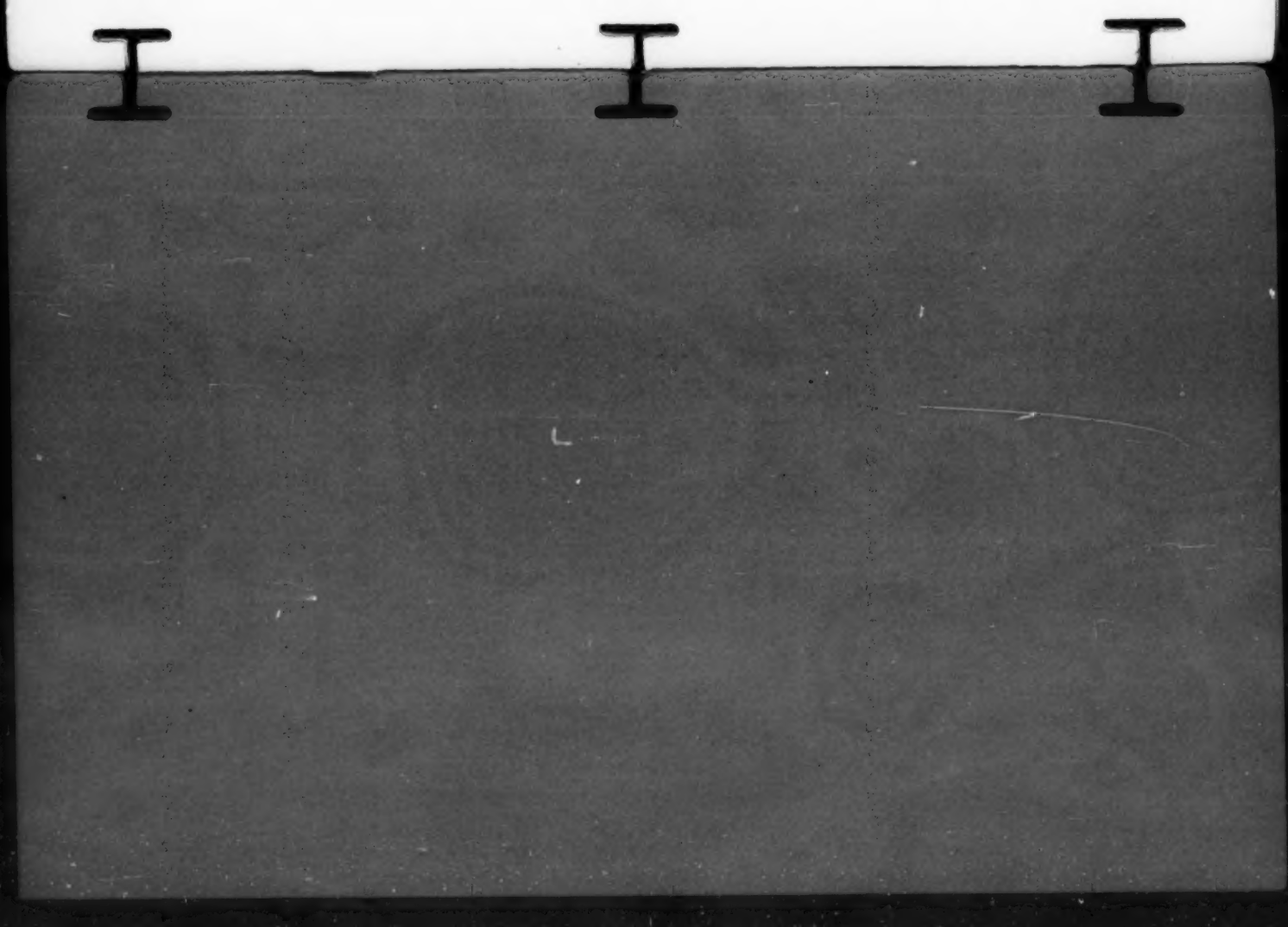

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Office Management and Efficiency Standards for Clerical Help

By

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The National Association of Cost Accountants does not stand sponsor for views expressed by the writers of articles issued as Publications. The object of the Official Publications of the Association is to place before the members ideas which it is hoped may prove interesting and suggestive. The articles will cover a wide range of subjects and present many different viewpoints. It is not intended that they shall reflect the particular ideas of any individual or group. Constructive comments on any of the Publications will be welcome.

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EDITORIAL DEPARTMENT NOTE

The office of every well managed business is rightly considered a service department for the entire organization. It is likewise the aim in such a business to cut the costs of all service departments to the lowest possible point without impairing the efficiency of the organization's operation.

One of the basic principles of scientific management is measured performance. As long as a business remains small, it is frequently possible for the office manager to keep all details of the organization so clearly in mind that he does not feel the need of control mechanisms that are a necessary tool in the hands of the manager of a large office. In such instances, it is also true that there is not enough of similar types of work so that a system of standards governing that work can be handled very easily or successfully. As offices grow in size, however, the temptation is placed before the office manager to bring about some method of measuring the performance of his workers. It is easy at such a time for him to adopt sweeping changes and erroneous methods without sufficient investigation in the hope that such changes, the principles of which have proved beneficial to other businesses will work similar results in his own business. One of the outstanding contributions of the paper presented at this time is the warning that is sounded in the use of ready-made and unscientifically selected systems in particular businesses.

The author of this paper, Mr. Arthur Van Vlissingen, Jr., was graduated from Northwestern University in 1915 and immediately entered the employ of the A. W. Shaw Company, of Chicago, in editorial work. In 1923, he became the Managing Editor of "System", one of the well-known Shaw publications. Shortly thereafter, he became the Manager of the Copy Department of the Potts Turnbull Company, advertising agents, and from 1924 to 1927 he spent his time as a free-lance writer principally on business subjects. In 1927, he became Editor of "Factory" and since November, 1928, has been doing special work for the McGraw-Shaw Company on the editorial staffs of several of their publications. He is now the Associate Editor of "System". In his work in the editorial field, Mr. Van Vlissingen has had the opportunity of observing a number of pertinent business facts and it is on the basis of these observations that this paper is presented.

He is the author of another one of our bulletins, "A Survey on the Effect of Departmental Consolidation on Cost—Office and Factory", issued August 15, 1929.

This paper was delivered before the Buffalo Chapter of the N. A. C. A., May 22, 1930.

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OFFICE MANAGEMENT AND EFFICIENCY STANDARDS FOR CLERICAL HELP

WHENEVER any group flatters me by inviting me to talk to its members about something of which I know far less from practical experience than do they, I always take refuge in the same preliminary introduction. An editor, I painstakingly explain, is an observer who studies the activities of other people from a detached viewpoint and strives to arrive at general principles by drawing them out of what he sees.

When the editor's particular field of study happens to be in a field where a good deal of activity is taking place, and where his publication is active, there come to his desk visitors who keep him posted on many of the developments, and articles describing many other developments. Consequently, although he is perhaps wholly inexperienced at first hand, he becomes at second hand a concentration point for information bearing on the subject.

There is a great deal of attention being devoted right now to the whole subject of office management and efficiency standards for clerical help. Therefore, in editing a magazine for supervisory executives in business, we are of necessity in contact with the subject. Whatever of useful information has adhered to me from these contacts I shall try to pass on to you to-night.

The subject assigned me is sufficiently broad so that it might include almost anything in the field of office management. But I suppose that the part of it we had better talk over is standards, primarily the determination of proper standards of clerical output, and methods of getting the clerks to turn out the volume of work called for by the standards. I don't know that I am actually succeeding in narrowing down the subject appreciably, for when you come to setting standards and bringing up the output accordingly, you are not excluding much of the office manager's job except his weekly argument with the sales manager about why the sales department clerks can't get to the office on time.

Basis of Standards. There prevails in most people's mind a charming vagueness about what a standard is. The best definition I have yet been able to discover is that of Morris L. Cooke, who says in part that it "is simply a carefully thought out method of performing a function . . . The idea of perfection is not in-

volved in standardization. The standard method of doing anything is simply the best method that can be devised at the time the standard is drawn . . . Improvements in standards are wanted and adopted wherever they are found . . . A proposed change in a standard must be scrutinized as carefully as the standard was scrutinized prior to its adoption, and . . . by experts as competent as those who originally framed the standard".

Let me add that a particular standard does not necessarily bear any relation to previous experience on the operation. Previous experience is ordinarily a matter of habits, which more often than not are wrong habits. To attempt to set clerical standards on the basis of what has been done, rather than on the basis of what should be done, is to erect a whole structure on a shaky foundation.

Just the other day I was discussing some office standardization work with the industrial engineer who had handled it. He wanted to show me the actual production standards he had set. But before he produced them he insisted, as would any serious, scientific worker in this field, on describing the preliminary studies that had been made to determine the proper general procedure in performing the operations that had been standardized. To make a showing in immediate savings, rather than do the best possible job, on a clerical operation we would start on the basis of experience. It is almost invariably possible to make some savings immediately by starting from this point. But if we want to make the greatest possible eventual saving, we first study the present procedure to see how we can improve it. Then, when we have a true standard of method, "the best method that can be devised at the time", we turn our attention to production standards.

The man in charge of office operations for one of this country's largest corporations maintains that in his company—and I suspect that he is right under his particular circumstances—it is not practical to pay any attention to standards of production. When some one comes to him with a problem that looks as if it would require some really expert study in the refinement of production standards, he starts to investigate first whether the operation is necessary at all, and second whether there is not possible some radical change in methods of attaining the same result with far less work. Almost invariably he is able to accomplish huge proportionate savings by one or the other of these approaches. And by the time this has

been accomplished there are other, equally promising jobs awaiting his attention and that of his comparatively small staff. So he never gets around to production standards work. Yet if he had another staff to follow after his methods-standardization men and do production-standardization, I know perfectly well that his company's clerical costs could be reduced far below their present level.

Benefits of Standards. Standardization of office operations offers three major benefits. We have already touched on the first, the improvement of methods. Plainly, you have to know what you are accomplishing before you can improve it. Therefore, you start out with a double purpose: To survey the methods employed, for possible improvement and, to survey the quantitative output both of the unit and of the individual clerks in the unit.

Something we are all too much inclined to overlook is that every clerical operation is a service operation, and that the main responsibility of office management is to improve the service. Even though our survey should disclose that the methods employed are right, analysis will invariably show up bald spots in the service that the office unit is giving. For instance, suppose that we have a central transcribing department where the work has been carefully time-studied, standardized, and put on an incentive method of compensation. Despite all this progressive management, we are likely to find that the transcribing department manager is more concerned with rolling up a total of square inches typed, or cyclometer impressions, than with her department's principal job. Yet the department is there, of course, to serve the people in the office who require transcribing work done; it is of little profit to roll up a tremendous per capita transcribing output, at a low cost per unit of work, if the people who need their letters written and their copy typed are being so delayed that the whole business is dragging as a result.

When we begin to perform a job of standardization, then, we may expect as our first benefit to improve the methods—thus giving better service at less expense. The second benefit to be derived is that we get more work from the clerks.

Let us again make the improbable assumption that we find all of the methods perfect. Even so, once we arrive at standards of output reasonably to be expected, we shall improve the showing. In the first place, we shall discover that some of the clerks are

turning out a very small day's work—standardization always discloses this condition. Even if there are only three clerks on a given job, and if the standard output is 100, we shall probably find one clerk doing almost 100, another doing perhaps 80, and a third down in the 50's or 60's. Therefore, if the low-volume producer does not "snap out of it", we replace him with someone who will give us a fair return for our salary dollars.

Also, when we have set our standards and begun to keep track of the output of the individuals, this very fact will lead to more output. And if we post each clerk's output daily or weekly, we shall obtain a better day's work from the slackers; nobody likes to lag below a mark that his fellows are approaching or equalling.

The third major benefit of standardization is that it permits us to shift over to incentive compensation, to paying our clerks for what they accomplish instead of paying them for merely being present during office hours. To get the full benefit of standardization work, it is essential to provide an incentive.

Right here let me insert a word of warning. The sound approach to standardization is this, that we go about setting standards in order to improve our methods rather than setting them in order to shift over to compensation for results. The reason for this is simple. If we have always in mind that every step is intended to get us closer to result compensation, we shall almost unavoidably slur over some of the intermediate steps. And very often the larger saving is to be had from method improvement, the smaller from paying on work performed. Therefore, the more nearly we succeed in keeping our minds focussed on the methods improvement that will come from our standardization work, the more we shall profit. Only when we have completed this should there suddenly come, almost as a surprise, the thought: "Why, this set-up would be ideal for incentive payment, wouldn't it?"

This whole question of standardization is, of course, part of scientific management. And we find sanction for this viewpoint in the work of Frederick W. Taylor, the founder of scientific management and of standardization work. With his singularly clear, keen mind he worked out many procedures which have to date been little improved upon. And in his work at Midvale he developed standards as a means of improving methods, attained substantial savings from the adoption of these standards—and

then gained further advantages by putting the workers on incentive compensation.

Application of Standards. Standards can be set on any operation that can be measured. In almost any office, 80% of the operations can be measured, and are therefore subject to standardization. But standardization is not desirable merely for the sake of standardization. Here, as in any kind of engineering activity, common-sense must temper the theoretical.

I recall a factory where I was being shown through in company with an industrial consultant who had made quite a reputation for himself by a couple of excellent jobs of installing mechanical handling equipment in place of the costlier manual handling. Consequently he was thinking very much in terms of mechanical handling. We were walking through a department with the works manager, and we encountered a man with a hand truck pushing a heavy machined casting.

"You ought to put in a conveyor and do away with that operation", the consultant announced without asking any questions.

"You know", the factory man told him, "we've thought of that. But there are just enough castings to be moved during the day to keep one man busy and there is no other work here that he could do. He takes the piece over to the stock room and puts it on a rack, and we don't have anybody on duty in the stock room. If we put in a conveyor, this man would merely have to put a casting on the conveyor every once in a while, and sit around the rest of the time. And we would then have to hire another man to sit in the stock room and unload a casting whenever it came over. Or else this man could load a casting on the conveyor and run over to the other end and unload it." The consultant did not seem to have much comeback.

There are some very small offices where I seriously doubt whether there would be much more point to setting office standards than there would have been to installing a conveyor in that factory. Though even in a very small office there may be a worthwhile saving, if three or four or five clerks are employed on similar and measurable work, so that by setting standards, improving methods, and installing incentive compensation it would be possible to get along with one or two or even three less employees on the job. It might be possible to improve the individual

output to such an extent that two small clerical departments could be merged, with one less clerk necessary. But in general it costs about as much to study and analyze and standardize a job employing two people as it does to get over the same ground in a good-sized department performing the same operation in a large office. Naturally, the opportunities for dollar economies are far greater in the larger establishment, and the expense of making the standardization proportionately far smaller.

Here again, in a large office it will probably pay to make a more detailed study than is practical in a small unit. I recall an experience in our own business, a good many years ago. A study was made of a department where about 30 girls were employed in mailing circular letters and enclosures. Because of the size of the operation, it was advisable to make detailed time studies and motion studies, and to experiment over several months to find exactly the best motions to get the letters and enclosures folded and stuffed into the envelopes. Eventually there was found a definite rhythm which best fitted the needs of the job and the ability of the girls. They were trained in this rhythm by the use of a metronome, one of those little ticking instruments that used to be used to help beginners learn to play the piano in proper time. An incentive plan was applied after the girls had learned the best method. And the job was finally refined to the point where it took only a little more than half the original number of clerks to perform the work, they were earning considerably more money than we had been able to pay them on flat salary, and the unit cost of mailing was decreased by about 33%. Obviously, if we had been concerned with a department of 3 girls instead of 30, we could not have afforded the months of work that went into that job. Saving 1 employee would not have been worth it; saving 10 employees was very decidedly worth it.

Scientific Determination Necessary. One of the most frequent questions that arises in connection with articles and talks about standards is, "What is the standard that worked so well in this particular instance?" The man who asks the question ordinarily does so because he hopes to adopt the standard for use in his own office.

The most important truth for anyone to know about standardization is that it is folly to copy a standard. A standard must be

built up from the facts of your own business, to fit the particular circumstances that prevail there. Anybody else's standard is, in your office, not worth the powder and shot to blow it up. Which is why you will not find the man experienced in standards work doing much talking in definite figures of units and minutes and dollars. He has usually learned from bitter experience that it can only cause trouble.

W. H. Leffingwell, an associate editor of our publication, told me the other day of such an experience that brought home this truth to him. He had made a talk before some group in New York City, and had mentioned very casually the figure of 200 square inches of typewriting per hour as the standard that had been employed in an office where he had done some engineering work. Six or eight months later he received a telephone call from a young woman who was head of the transcribing department in a large advertising agency. She wanted to come over to see him and he gave her an appointment.

She wanted to argue with him what she had been told was his flat assertion that any typist should produce 200 square inches per hour. She was considerably taken aback when he denied that he had made any such assertion. "Mr. So-and-so, our office manager, declares that you said so in a talk before such-and-such an association", she told him.

When he finally convinced her that the office manager had been mistaken, that the statement had been made merely in the form of an instance of what had been done in a certain office, she told him her troubles. The office manager had come back from the meeting, measured up the output of a typical day, and discovered that it fell far short of 200 square inches per hour per operator. So he had called in the supervisor and told her that she had to turn out that much work.

During the ensuing months a great many typists had been discharged because they did not measure up to 200 square inches of production. The supervisors had been changed twice, and the troubled young woman was now in danger of losing her job. Questioning brought out the fact that much of the typing in her department consisted of tabulations such as advertising schedules for clients, and sales figures in clients' territories. Obviously—at least, it would seem to be obvious—a typist cannot produce

tabulation at the same rate as straight text. There were other frequent runs of work that required special effort and consequently lowered output. Mr. Leffingwell's 200-square-inch figure had, as it happened, been the standard for straight typing, one carbon, double-spaced, narrow margins at side and top and bottom from typewritten copy which had not been badly mutilated. To try to apply that standard to all the typing in a large office was ridiculous; of course it would not apply. The young woman went back to her boss and got the false standard withdrawn. And Mr. Leffingwell profited to this extent, that he was reminded once more that it is unwise to mention specific figures where anyone can get at them. I'll bet that right now at least half a dozen of you have made a mental note of that 200-square-inch standard and intend to test it out on straight copy typing in your own offices—despite the specific warning that it won't apply to your kind of work.

It is only fair, however, to say that like every invariable rule, this has exceptions. And to point out the other side of this picture, I am going to read you a memorandum that I received last Saturday from Norman Firth, our editor. I had sent him a copy of the first draft of this paper, and he took exception to this very point. Here is what he wrote to me:

"You and I differ considerably as to the desirability of publishing such things as standards. Sometime ago I had almost exactly your point of view on this and I think that my former conviction was something that came to me from you back before 1923. But as I have had more and more opportunity to talk with people who are actually doing this kind of work, I have become less and less convinced that there is any great danger in telling people of the standards that have been established in other businesses.

"Probably there are some dangers both ways. But the number of instances in which a man is likely to run into difficulties because he has knowledge of standards established in other companies is very, very small in comparison with the number of instances in which a man is likely to do nothing at all because he has no basis for guessing as to how good he should be.

"Certainly we should not say to anyone that he can take the exact practice of any company—either as to a standard of production or a management ratio or any sort of method, procedure,

or policy—and apply it exactly, unthinkingly, and blindly to his own problems. We should always point out the necessity for adapting whatever has been done elsewhere to the needs of a business.

"But the difficulty with most business men is that they have no knowledge at all of what has been done in other businesses. If we tell exactly what has been done in other businesses we aid them considerably. There are always going to be some people who are going to read one paragraph or remember only one sentence of a speech and who are going to mis-apply what they have read or what they remember because they have removed this one remark from the rest of the text. That is what happened in the instance Mr. Leffingwell told you about. That instance is not an example of the danger of the use for comparative purposes of a standard worked out by someone else. That instance is an illustration of the awful thing that can happen if you remember only one sentence.

"All of the work on the cost of doing business which the A. W. Shaw Company did years ago and which universities and trade associations have done since then and all the work on the National Office Ratio Survey which we are doing now should be discontinued if you are correct about the danger of letting people know about the standards which have been worked out by others. In fact, there would be little reason for publishing *System* if you were correct about this.

"I am not especially urging you to change your paper but it seems to me that you would like to know about this point of view.

"Incidentally, the most popular documents published by associations are those in which standards and ratios established at various companies are collected and published for the information of others. Many who attend conventions testify to the money they have saved by checking their own standards against those established by others. In the National Office Ratio Survey we plan to publish information about exactly the kind of standards that you are talking about.[1] A copy of the questionnaire which is being used in connection with this information is enclosed. It

[1] Portions of the results of this Survey have since been published in various issues of "SYSTEM" during the past summer. Other issues will carry additional findings of the Survey.

has the approval of the committee which is conducting this survey and which is a rather intelligent committee.

"If you should care to change your paper perhaps you will wish to have some of these questionnaires sent to you so that you can pass them out to people who have done any work of this sort to be filled out and have them turn them in. The mailing is going out this week and we can probably send you a few if you telegraph for them."

Now then—I am not wholly in accord with that point of view. But perhaps in my desire to make my point I originally stated it too strongly. Mr. Firth's opinion is at least as valuable as mine. But, tempering my remarks by his warning, let me still point out the danger of slavishly following somebody else's established standard.

So few things, you know, are identical in two offices. For instance, it requires the same time to punch a typewriter key or an adding machine key or a tabulating keyboard punch key in one office as in another. But an operator cannot punch a key as frequently on one type of copy as on another. Standards are usually set by another unit, anyhow—so many invoices an hour, or so many letters. But one office may insist on writing out "and" and "company" and "street" and the state name, and always using the addressees's official title on the address. Another may permit abbreviations of them all and may include neither street address nor business title on the letter. The second office, therefore, will get a greater production of letters, everything else being equal.

Or suppose that two concerns, using the same equipment and forms, have the same average number of items on an invoice. The first firm's typical invoice line will be "1 doz. shirts." The second firm, using symbols, will have as its typical line, "1 doz. PB3xg7". You and I know that, whatever the theory of it, a girl can typewrite "shirts" in less time than she can type a complicated symbol consisting of capital letters, lower case letters, and figures. So, with otherwise identical conditions, the first company's standard on invoices will not fit the second company's needs. The way an engineer will discover it, of course, is by making time studies in both departments. Inevitably, the second office will have to allow a little more time per invoice—or a smaller number of invoices per standard hour—than the first.

Addressing envelopes seems like something that should permit a common standard in every office. But experience has shown that the time required for addressed envelopes varies directly with the kind of copy from which the addresser works. So if I were to say that 240 envelopes per hour is the standard in a given office, the statement would be deceptive unless I also should give all of the facts that go to make 240 per hour a correct standard.

Filing is generally regarded as the least common denominator of office work. After all, you say, filing is the same in almost every office, filing equipment is standard, folders are much alike, the average letter or order or invoice that makes up the bulk of filing is just about the same in one office as in another. But in one office, a girl does all the filing in one cabinet, or three cabinets. In another office, she has to file in 50 cabinets. Even though these two offices are in the same company, using identical forms and an identical filing system, the girl with 50 cabinets to work with cannot possibly do as much as the girl who can stand or sit in front of a single cabinet. So our idea of a common standard is once more blown sky-high.

A standard, to be worth anything, must be just as individual as your toothbrush. To fit the needs of a given business, it must be tailored to the exact conditions prevailing there. And if there comes a change in conditions, the standard probably will have to be re-set to meet them. It is a commonplace of factory time-study and standards work, that when you change an operation you have to re-study it. The rule applies just as well in the office as in the plant.

A good deal of what has to be said in discussing office standards work is simply a restatement of what every competent factory standards man already knows. There is nothing tremendously different between factory standardization and office standardization. The difference grows less every year, as more and more office machinery is adopted to save the costly manual operations. The task of standardizing the operations of a machine operative in the office—whom we call a clerk—is essentially the same, and yields to exactly the same type of approach, as the task of standardizing the operations of a machine operative in the plant. After all, operating a battery of three automatic typewriters does not

require a very different type of employee from that required to operate four or five automatic screw machines.

Preliminary Work in Setting Standards. We have so far been talking pretty much about the general benefits to be attained through standardization, and the natural limitations on this type of activity in office management. Perhaps it is time to touch on the technique of standardization and its closely kindred activities. This, too, we can discuss only in rather general terms. For, just as the precise standard of a given operation in a given office will be useable nowhere else, so the precise technique employel in a given problem will fit no other.

It is very much like playing bridge. A general type of approach applies to all hands. A given hand requires a special sub-class of approach—perhaps pulling all trumps, or discarding several losing tricks before giving up control of a suit, or cross-ruffing, or whatnot. When you get it down to that point, you give up all formula and work out the details of play on the merits of the specific hand. So it is with standardization. A general technique. A smaller classification of treatment for a given type of problem. But the solution of the specific problem depends on the characteristics peculiar to the job that needs doing.

Occasionally—so very occasionally that it is mentioned only for the sake of absolute accuracy, to "get it into the record"—study of a measurable operation may reveal that no new standards are necessary. The only possibility of this is on some few jobs which are manned by people trained in technique before they come to work. For instance, if an adding machine company gives careful training in the operation of its machines and we obtain all our adding machine operators from the company, the clerk may be so well trained in correct working habits that we find no need for corrective work. If this work comes in a steady flow to the clerk, it is possible, but most unlikely, that we can make no improvement in the whole job.

We may take it as gospel truth that through study any operation performed by a clerk can be improved. And if the operation is measurable, it can be standardized. Whether, in a given instance, it will pay to standardize it is another problem. A word of warning: Don't conclude too readily that it will not pay to standardize the job.

As has already been intimated at intervals throughout this talk, it is essential that the task of standardization be approached slowly and performed carefully, in order that results may measure up to the possibilities. Another important reason for proceeding with care and tact is that there always arises some opposition to the work. To borrow a phrase from the cartoons of the late Clare Briggs, "There's one in every office". Since the opponents of the program may be, and usually are, wholly sincere in their opposition, the program will be advanced most readily if the work is carried on tactfully and carefully, so that they may take their own time in getting used to it and seeing for themselves that it is not being rushed into headlong. Such educational work will win over the opposition much more effectively than will direct fighting.

You will recall from the Morris L. Cooke definition of a standard that it is not regarded as perfection when it is once set. A standard should be left to itself only as long as it works smoothly and as long as there are in the office no older standards to be checked. Checking does not necessarily include changing. It is unwise to change a standard until it has been definitely proved that the suggested change is a real improvement—and definite proof usually should include a test run under the proposed new standard to make it prove itself before adoption.

For proper maintenance and improvement of standards in the office, it is necessary to provide for the carrying on of standards work at all times. Not only is it a long job to get over the whole office and set standards, but also those standards must be gone over and kept track of. Moreover, new conditions will keep arising which call for new standards work, so that there is little likelihood of a competent standards man loafing on the job or failing to earn his pay and return a good-sized profit above it. It is always advisable, even when the original standardization job is done by an outside expert, to train another man under him to learn the whole job, and then keep this employee responsible for carrying on after the consultant has departed. You can't leave it up to the auditor or the office manager. These men have other jobs to do, and presently you discover that the carefully conceived standardization program has gone to seed because it has not been

kept abreast of the jobs that it is supposed to help control.

Of course you must be careful not to turn over this job to someone whose ability and training is too highly limited. You will recall, also from the Cooke definition, the insistence on having a standard changed only when the proposed change is scrutinized as carefully as the standard itself was scrutinized before adoption, and by experts as competent as those who originally framed the standard. This safeguard must be observed without exception. Therefore, you must make sure that your permanent standards man has the training and the characteristics that make for competence in this work. When you have the right man on this job, you may know that your standards will not be allowed to prevail on jobs that they no longer fit, and also that they will not be changed needlessly and less effective standards substituted for them.

Procedure in Setting Standards. Now then, for the actual procedure of setting standards. The simplest, clearest explanation of this whole process that I know is contained in W. H. Leffingwell's book, "Office Management".[2] What I am going to say is very largely taken from this book, chapter 44, "The Setting of Standards", and I wish to acknowledge my indebtedness to him in this connection.

In making his preliminary survey of the office, the man in charge must determine which operations are measurable and which are not measurable. In practically every office, between 66% and 75% of all the clerical work is measurable and therefore may be standardized as to output. Carefully set standards and definite control on such a proportion of office work is bound to improve the service of the office as a whole, and to decrease the office costs.

There are three general ways in which office work may be measured: 1. By actual count of pieces. 2. By the use of a scale. 3. By measuring the average time required. The proper method of measuring depends strictly on the operation under consideration. Some work, such as, let us say, multigraphing or mimeographing or addressing from plates or stencils, can easily be counted. If an operator on a mimeograph is given 1,000 sheets of paper and told to produce 1,000 copies, it is comparatively easy

[2] Published by the McGraw-Shaw Company (1925), New York City

to know that she has turned them out. Even assuming any dishonesty—and experience has shown that clerks are most unlikely to make false returns to swell their bonus checks—if the 1,000 copies were ordered for a specific purpose, a shortage will show up when they are being distributed. Or, on an addressing operation, a drawer contains about the same number of plates or stencils, and the production can be measured easily by counting the number of drawers run. Or, failing that count, it would be easy to find out from the mailing department how many stamps or permit impressions were required to mail the envelopes addressed. This is one of the simplest forms of measurement, and on work which it fits usually can be attained at almost no cost for the counting. Or there is the cyclometer for counting strokes on a typewriter or adding machine.

Measurement by scale is another simple method, once you have your scale developed. Perhaps the best known scale of this sort is the one that Leffingwell devised for the measurement of typewritten square inches. I know from personal experience with a transcribing department where this scale was used that the accurate computation of output of a good-sized department was taken care of in a fraction of the time of the department supervisor.

The scale is simply a transparent celluloid sheet, ruled up to read off in square inches when the upper left-hand corner is placed over the upper left-hand corner of the typed sheet. Similar scales and gauges can be devised for a great many types of office work, making a simple job of something that otherwise would be rather complex.

When a job is made up of a great many complex parts, and it would be too much of a job to count or scale them, the average time required is a good method. Study and experience will show how long the overall job should require, by averages. Spread these averages over a week's work by an operator and you get a figure that is comparable with the average, even though many of the individual jobs may have taken much more or much less time.

We have already touched on the advisability of going slowly and carefully about our job of standardization. When we start in, we had far better abstain from any immediate effort at standardization. Many a good opportunity to increase profits by standardization has lost out because, in the desire to make an im-

mediate showing, somebody seized hold of the first operation he saw and standardized that. Unfortunately, such an operation is likely to turn out to be non-essential in the re-studied routine, or otherwise the wrong place to start, and the whole job gets a black eye in consequence.

We have discussed also the pre-standardization work, the study of whether an operation is necessary and whether, if it is necessary, it is handled properly in general. This work frequently will pay generous returns, by the elimination of those wastes which creep into every office where their control is not specifically the responsibility of any one trained individual. I have in mind one organization where, in this phase of the methods betterment, forces were set in motion which within two years reduced the number of forms and reports by 76%, with a proportionate reduction in expense. It must be remembered that a report not only requires the work of making it up, but also takes the time of people to read it, the time of clerks to handle and file it, and filing equipment space to store it. If it is valuable, it is of course worth all that it costs. But too frequently such reports are started to fill a specific need and are continued long after the need has passed. It is this type of thing that the pre-standardization work ferrets out and corrects.

A general rule, although it is frequently varied for good reason, is to start standardization work in the flow of the main routine. This is most frequently concerned with orders, their receipt, registration, checking, filling, shipping, and so on. As L. C. Walker has well pointed out in his recent book, "The Office and Tomorrow's Business[3]", the basic purpose of office operations is to receive orders, fill them, ship them, and collect for them. Anything else is aside from the chief purpose of the business, and consequently it is ordinarily most profitable to start in on this main artery of the business. But if, perhaps, the head of a department near the source of the main routine is inclined to oppose the whole program, it will probably be more satisfactory in the long run to take hold of the job by some other handle. A brand-new standardization program starting its career in a hostile department offers the best of chances for flat failure. Again, if the business happens to be one where other activities sustain larger departments

[3] Published by The Century Company (1930), New York City.

than those in what is normally the main flow, it is likely that the most promising start may be made in such a department.

There are three necessary steps in setting standards:

1. Analysis of the existing method for strengths and weaknesses of, a. The operation. b. The method used, c. The employee.
2. Methods betterment according to facts disclosed in step 1.
3. Setting standards of output.

These are the essential steps. Even though it seems unlikely that changes in the operation or the method would be improvements, the standards man must concentrate on the possibility. For it is extraordinary to find an operation or a method which does not offer real opportunities for savings. If the worker is too easily convinced that everything is already for the best, he will not attain the attainable result.

On the other hand, the whole cause of scientific management in the office has been hurt repeatedly by people who rush in to make changes in established methods, either on the basis of inadequate information or inadequate ability. To guard against any such tendency in himself the standards man should make a definite test, in actual operation, of his new procedure before he attempts to make it the standard. The superior executives of the firm should also insist on this test, to guard their office from the consequences of such rashness.

Time study and motion study are essential to the scientific determination of the best methods. Of these, motion study comes first. In making his observations, the standards man must follow a definite order of study.

1. The manner in which the work comes to the operator.
2. The work-place.
3. The layout.
4. Observation for superfluous motions.
5. Analysis of slow motions.
6. Analysis for simplification of difficult motions.
7. Motions which seem unskillfully performed.

If, during these studies, the standards man thinks of a way to make an improvement, he had far better make a note of it than try to stop then and there to try it out. Incidentally, the studies can best be made in a separate room with the cooperation of a

skilled operator. Best results seldom come from motion studies made in work rooms.

An important part of the standardization of method, when it has finally been worked out, is to reduce to writing a description of how the work should be performed. This then should be tried by having it studied by an intelligent clerk. If the clerk can follow the instructions, they are all right. If not, they should be revised until they are clear and intelligible. Very recently, in going over with an industrial engineer a report of a large job which had been finished with unusually good results, I was shown a book of these instructions so worked out—sometimes with diagrams and charts —that the clerk of normal intelligence could sit down and study out for himself just how the operation could be performed most effectively. Until a standard is reduced to written form, it hardly can be called a standard.

Also, in working out a standard, it is always best to study several clerks' motions if there are several on the operation. Frequently it is possible to synthesize a new method by taking the best motions from half a dozen different operators, and substitute these for the less effective motions used by the rest.

When we come to time study, I suppose it is advisable to talk almost in terms intelligible to anyone who has no first-hand knowledge of time study and stop watches. This doubtless will be a burden for some of you to sit through, but I shall do my best to make it brief. In the first place, a time study is properly made of the elements of the operation, by means of a watch which may be stopped at hundredths of a minute. If, for instance, we are studying the operation of addressing envelopes without having improved the method, we probably break it into three elements: 1. Pick up envelope and place it in machine at position for typing; 2. Read and type address; 3. Remove envelope from machine and place with completed work. Or if we have already standardized the method on this operation, we find operations 1 and 3 merged, because we teach the operator to insert a new envelope and remove the addressed envelope at one turn of the typewriter platen.

Time-study is something that must be handled tactfully, frankly, and with adequate explanation. No time-Studies ever should be made without the knowledge and consent of the clerk, because this is bound to cause resentment and misunderstanding of the

purpose. When we make time studies, we are not trying to pry into the personal working habits of the individual, but rather to gather scientific data that may be used to standardize output and make the whole job more profitable to employer and employee alike.

There are six general classifications of unit times into which practically all office work may be broken down. These are:

1. Preparatory work. Such as changing a typewriter ribbon or cleaning the machine.
2. Sorting or arranging.
3. Searching and finding.
4. Performing the work.
5. Removing work.
6. Adjustment.

The subject clerk to be time-studied should be selected because of his skill at the operation. If the study is to be made on a new operation, defer the study until at least one clerk has become skilful at it. A time study of a new and unfamiliar job is of little value, since it consists of timing unfamiliar motions in an unfamiliar sequence. It is sometimes true that studying the best worker gets so high a standard of performance that allowances have to be made for the less skilful worker. But there is no point to time studying the work of an unskilful worker, since the purpose of the time study is to give us the figures on how much time it takes to perform each element with adequate skill.

After we have made a complete study, and know all the time elements, we cannot expect the clerk to turn out work all day at this rate. There are almost sure to be delays due to failure of the management to keep work coming through in a steady flow. The employee must have some personal time, there must be fatigue allowances, and so on, usually lumped in one figure. Experience teaches the standards man what allowances to make. A good many standards men have learned that the allowance time varies inversely with the length of time required to perform a single unit. It is logical that a job which requires 1/10 minute to perform offers many more opportunities for time losses than one which requires 10 minutes to perform.

As the final step, after standards have been set they must be recorded just as painstakingly as the motion study records re-

ferred to a few minutes ago. Each operation usually is listed on a single sheet, showing the unit times for each of the six time elements, and such additional information as is necessary. It might be determined, for sake of illustration, that addressing bond envelopes takes a little longer than addressing sulphite envelopes; I am not saying that it does, but suppose that it did. Then the time studies of these two operations might very well be set up on a single sheet, in comparison, where they can be seen and used if the question comes up whether to use a bond or a sulphite envelope on a given job. Also, with information of this sort available, the student can see where the time allowed on, say, addressing envelopes seems to be larger than the time allowed on a similar job of typing addresses on index cards. Under these circumstances, there would be opportunity for savings.

I have intentionally side-stepped the whole question of incentive compensation. I do not intend to take it up, except in the briefest and most general of ways. There are any number of incentive plans advocated by their inventors, differing more in detail than in principle. I don't know which is the best, and neither does anybody else except the fellow who invented it or the user who has had an exceptionally successful experience with it.

My own guess is that any normally intelligent business man is perfectly competent to figure out whether a given compensation method is basically sound. If it is, it will probably work well in his office, about as well as will any other sound method.

But once you have done all of this preliminary work, and finally, after painstaking motion study and time study have developed standards which are scientific and accurate and fair, you have a basis for paying your clerks for the work they do for you, instead of for merely sitting at a desk or a machine and apparently keeping busy. In other words, you know what they should do, they know what they should do, and if they do that well they keep their jobs; if they do better, they get good bonuses or some other form of incentives.

Unquestionably, the measured-production type of compensation is the coming method in offices, just as it has been established in the nation's factories for a good many years. And here, from an article which appeared in the June, 1930, issue of *System* is a sample of the sort of fact that makes me sure of it. It is a

tabulation from a central stenographic department where the girls had been paid straight salaries, and no record kept of their output. Mechanical counters were put on their typewriters, and here is the result in three lines:

Average output before study..... 2,676 strokes pr. hr.
" " after installation of counters, 4,182 " " "
" " under incentive payment.... 5,450 " " "

The office obtained, you see, a little better than double the production, and each girl got a material increase in her weekly earnings.

Standards work, then, makes necessary the improvement of methods and procedures in the office, saving a lot of expense in the process. It keeps a record of individual—or sometimes of group—production, and thereby steps up the output materially just because the people know that the record is being kept. Finally, it makes possible the payment of incentive compensation, which is better for the office and for the employee alike. When you can set up a list of cost-saving benefits such as this, there is, it seems to me, little chance of anyone setting up a counter-list that can possibly outweigh it. Standards of output—efficiency standards, as your subject for tonight phrased it—are an absolute essential for the really economical management of the office and its clerical help.

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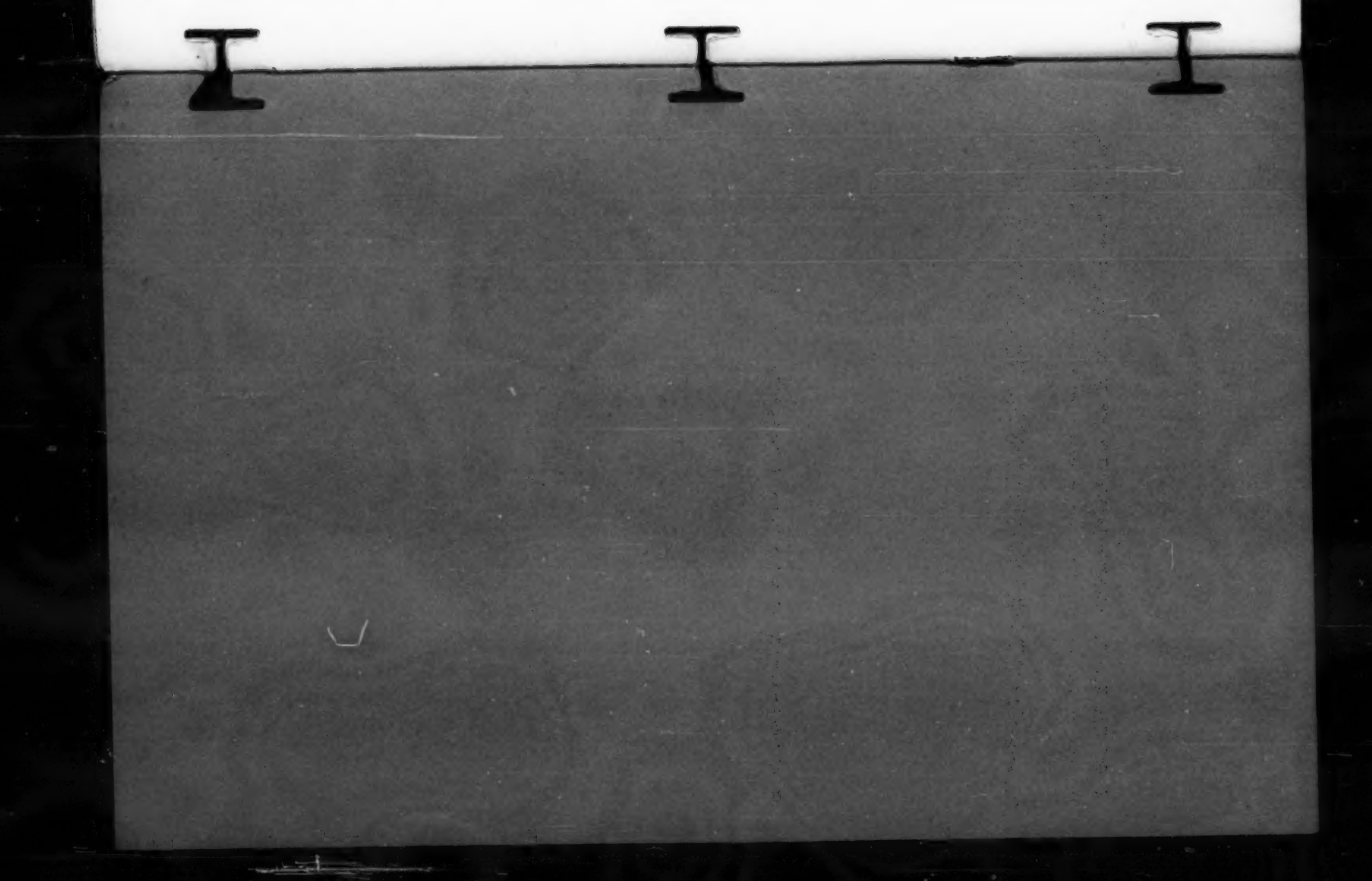

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